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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/576,720

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Kiminobu Hirata

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MCDERMOTT WILL & EMERY LLP
18191 VON KARMAN AVE.
SUITE 500
IRVINE, CA 92612-7108

EXAMINER

TRAN, BINH Q

ART UNIT

PAPER NUMBER

3748

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/576,720

Applicant(s)

HIRATA ET AL.

Examiner

BINH Q. TRAN

Art Unit

3748

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 7-12 and 14-20 is/are rejected.
- 7) ☒ Claim(s) 5-6, 13 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. ____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>09/2006; 02/2007</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1-4, 7-11, and 15-20 are rejected under 35 U.S.C. 102 (b) as being anticipated by Murphy et al. (Murphy) (Patent Number 6,487,852).

Regarding claims 1, and 19-20, Murphy discloses engine control apparatus and method (e.g. 10) configured to be in cooperation with an engine (14), the engine including an addition device (e.g. 16) for adding a NOx reducing agent to exhaust gas of the engine, the engine control apparatus comprising: a control unit (e.g. 26) for controlling the engine, wherein the control unit

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detects an abnormality having occurred in the addition device, to restrict an output of the engine at a time of the abnormality occurrence when the occurrence of the abnormality is detected (e.g. See col. 4, lines 1-67; col. 5, lines 1-48).

Regarding claim 2, Murphy further discloses wherein at the time of the abnormality occurrence, the control unit varies an output characteristic of the engine relative to an accelerator operation by a driver from that at a normal time other than the time of the abnormality occurrence (e.g. See col. 3, lines 36-67; col. 5, lines 3-48).

Regarding claim 3, Murphy further discloses wherein the control unit changes a fuel supply quantity to the engine at the time of the abnormality occurrence from that at the normal time, under the same accelerator operating amount, to vary the output characteristic of the engine (e.g. See col. 3, lines 36-67; col. 5, lines 3-48).

Regarding claim 4, Murphy further discloses wherein, on the basis of the same accelerator operating amount, the control unit decreases the fuel supply quantity at the time of the abnormality occurrence than that at the normal time (e.g. See col. 3, lines 36-67; col. 5, lines 3-48).

Regarding claim 7, Murphy further discloses wherein the engine is mounted on a vehicle, and wherein the control unit detects a vehicle speed, and varies the fuel supply quantity only when the detected vehicle speed is larger than a predetermined value (e.g. See col. 4, lines 1-67; col. 5, lines 1-48).

Regarding claim 8, Murphy further discloses wherein the control unit inhibits restarting of the engine operation after the engine operation stops, to restrict the output of the engine (e.g. See col. 4, lines 1-67; col. 5, lines 1-48).

Regarding claim 9, Murphy further discloses wherein the control unit breaks the connection between a starter for cranking the engine, and a power supply unit for the starter, to thereby inhibit the restarting of the engine operation (e.g. See col. 4, lines 1-67; col. 5, lines 1-48).

Regarding claim 10, Murphy further discloses wherein the control unit inhibits the fuel supply to the engine, to thereby inhibit the restarting of the engine operation (e.g. See col. 4, lines 1-67; col. 5, lines 1-48).

Regarding claim 11, Murphy further discloses wherein the control unit stops the engine operation after a predetermined period of time has elapsed from detection of the abnormality occurrence (e.g. See col. 4, lines 1-67; col. 5, lines 1-48).

Regarding claim 15, Murphy further discloses wherein the NOx reducing agent is ammonia (e.g. See col. 4, lines 1-67; col. 5, lines 1-48).

Regarding claim 16, Murphy further discloses wherein the addition device adds urea as a precursor of ammonia to the exhaust gas, to thereby add the NOx reducing agent (e.g. See col. 4, lines 1-67; col. 5, lines 1-48).

Regarding claim 17, Murphy further discloses wherein at the time of the abnormality occurrence, the control unit operates a warning device for notifying a driver of the abnormality occurrence (e.g. See col. 4, lines 1-67; col. 5, lines 1-48).

Regarding claim 18, Murphy further discloses a first control unit for controlling the engine, and a second control unit for controlling the addition device, wherein the second control unit controls the addition device at both of the time of the abnormality occurrence, and a normal time other than the time of the abnormality occurrence, and the second control unit, at the normal

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time, operates the addition device to add the NOx reducing agent by an amount according to engine operating conditions, while at the time of the abnormality occurrence, stops the adding of the NOx reducing agent by the addition device (e.g. See col. 4, lines 1-67; col. 5, lines 1-48).

Claims 1-4, 7-12, and 14-20 are rejected under 35 U.S.C. 102 (b) as being anticipated by Van Nieuwstadt et al. (Van Nieuwstadt) (Patent Number 6,546,720).

Regarding claims 1, and 19-20, Van Nieuwstadt discloses engine control apparatus and method (e.g. 10) configured to be in cooperation with an engine (14), the engine including an addition device (e.g. 16) for adding a NOx reducing agent to exhaust gas of the engine, the engine control apparatus comprising: a control unit (e.g. 12) for controlling the engine, wherein the control unit detects an abnormality having occurred in the addition device, to restrict an output of the engine at a time of the abnormality occurrence when the occurrence of the abnormality is detected (e.g. See col. 9, lines 1-67; col. 10, lines 1-31).

Regarding claim 2, Van Nieuwstadt further discloses wherein at the time of the abnormality occurrence, the control unit varies an output characteristic of the engine relative to an accelerator operation by a driver from that at a normal time other than the time of the abnormality occurrence (e.g. See col. 9, lines 1-67; col. 10, lines 1-31).

Regarding claim 3, Van Nieuwstadt further discloses wherein the control unit changes a fuel supply quantity to the engine at the time of the abnormality occurrence from that at the normal time, under the same accelerator operating amount, to vary the output characteristic of the engine (e.g. See col. 9, lines 1-67; col. 10, lines 1-31).

Regarding claim 4, Van Nieuwstadt further discloses wherein, on the basis of the same accelerator operating amount, the control unit decreases the fuel supply quantity at the time of the abnormality occurrence than that at the normal time (e.g. See col. 3, lines 36-67; col. 5, lines 3-48).

Regarding claim 7, Van Nieuwstadt further discloses wherein the engine is mounted on a vehicle, and wherein the control unit detects a vehicle speed, and varies the fuel supply quantity only when the detected vehicle speed is larger than a predetermined value (e.g. See col. 9, lines 1-67; col. 10, lines 1-31).

Regarding claim 8, Van Nieuwstadt further discloses wherein the control unit inhibits restarting of the engine operation after the engine operation stops, to restrict the output of the engine (e.g. See col. 9, lines 1-67; col. 10, lines 1-31).

Regarding claim 9, Van Nieuwstadt further discloses wherein the control unit breaks the connection between a starter for cranking the engine, and a power supply unit for the starter, to thereby inhibit the restarting of the engine operation (e.g. See col. 9, lines 1-67; col. 10, lines 1-31).

Regarding claim 10, Van Nieuwstadt further discloses wherein the control unit inhibits the fuel supply to the engine, to thereby inhibit the restarting of the engine operation (e.g. See col. 9, lines 1-67; col. 10, lines 1-31).

Regarding claim 11, Van Nieuwstadt further discloses wherein the control unit stops the engine operation after a predetermined period of time has elapsed from detection of the abnormality occurrence (e.g. See col. 9, lines 1-67; col. 10, lines 1-31).

Regarding claim 12, Van Nieuwstadt further discloses wherein the engine comprises a tank for storing an aqueous solution of the NOx reducing agent or an precursor thereof, which is added to the exhaust gas by the addition device, and wherein the control unit comprises a first sensor (26) for detecting a concentration of the NOx reducing agent or the precursor contained in the aqueous solution stored in the tank, and when a value of the concentration detected by the first sensor is out of a predetermined range, detects the abnormality occurred in the addition device (e.g. See col. 9, lines 1-67; col. 10, lines 1-31).

Regarding claim 14, Van Nieuwstadt further discloses wherein the engine comprises a tank for storing an aqueous solution of the NOx reducing agent or a precursor thereof, which is added to the exhaust gas by the addition device, and wherein the control unit comprises a second sensor for detecting a residual quantity of the aqueous solution stored in the tank, and when a value of the residual quantity detected by the second sensor is smaller than a predetermined value, detects the abnormality occurred in the addition device (e.g. See col. 9, lines 1-67; col. 10, lines 1-31).

Regarding claim 15, Van Nieuwstadt further discloses wherein the NOx reducing agent is ammonia (e.g. See col. 9, lines 1-67; col. 10, lines 1-31).

Regarding claim 16, Van Nieuwstadt further discloses wherein the addition device adds urea as a precursor of ammonia to the exhaust gas, to thereby add the NOx reducing agent (e.g. See col. 9, lines 1-67; col. 10, lines 1-31).

Regarding claim 17, Van Nieuwstadt further discloses wherein at the time of the abnormality occurrence, the control unit operates a warning device for notifying a driver of the abnormality occurrence (e.g. See col. 9, lines 1-67; col. 10, lines 1-31).

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Regarding claim 18, Van Nieuwstadt further discloses a first control unit for controlling the engine, and a second control unit for controlling the addition device, wherein the second control unit controls the addition device at both of the time of the abnormality occurrence, and a normal time other than the time of the abnormality occurrence, and the second control unit, at the normal time, operates the addition device to add the NOx reducing agent by an amount according to engine operating conditions, while at the time of the abnormality occurrence, stops the adding of the NOx reducing agent by the addition device (e.g. See col. 9, lines 1-67; col. 10, lines 1-31).

Allowable Subject Matter

Claims 5-6, and 13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Since allowable subject matter has been indicated, applicant is encouraged to submit **Final Formal Drawings (If Needed)** in response to this Office action. The early submission of formal drawings will permit the Office to review the drawings for acceptability and to resolve any informalities remaining therein before the application is passed to issue. This will avoid possible delays in the issue process.

Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure and consists of five patents:

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Brown et al. (Pat. No. 7216478), Lewis, Jr. et al. (Pat. No. 6983589), Wataya (Pat. No. 5186148), Emmerling et al. (Pat. No. 6119448), and Fraenkle et al. (Pat. No. 5845487) all disclose an exhaust gas purification for use with an internal combustion engine.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Binh Tran whose telephone number is (571) 272-4865. The examiner can normally be reached on Monday-Friday from 8:00 a.m. to 4:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion, can be reach on (571) 272-4859. The fax phone numbers for the organization where this application or proceeding is assigned are (571) 273-8300 for regular communications and for After Final communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BT
August 05, 2007



Binh Q. Tran
Patent Examiner
Art Unit 3748